

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A computer-readable storage medium storing a program for reformatting binary image data, the binary image data transmitted from ~~an external-a data~~ source outside an apparatus into which the computer-readable storage medium is installed, the program comprising the steps of:

receiving binary image data from the ~~external~~data source;

converting the binary image data into gray scale image data;

segmenting the converted gray scale image data into a first plane having high spatial frequency gray scale image data and a second plane having low spatial frequency gray scale image data; ~~and~~

~~reducing only resolution of the low spatial frequency gray scale image data to generate scaled low spatial frequency gray scale image data in the second plane; and~~

separately compressing the high spatial frequency gray scale image data in the first plane and the low spatial frequency gray scale image data in the second plane.

2. (Previously Presented) The program of claim 1, wherein segmenting gray scale image data includes segmenting the gray scale image data into a plurality of blocks before segmenting pixels in the blocks into the first plane and the second plane.

3. (Previously Presented) The program of claim 1, further comprising:

enhancing the low spatial frequency gray scale image data in the second plane.

4-8. (Canceled)

9. (Currently Amended) An apparatus to reformat binary image data, the binary image data transmitted from ~~an external-a data~~ source outside the apparatus, the program elements comprising:

a converter that receives binary image data from the external data source to convert source binary image data into gray scale image data;

a segmentor to segment the converted gray scale image data into high spatial frequency gray scale image data in a first plane and low spatial frequency gray scale image data in a second plane;

a scale module to reduce only resolution of the low spatial frequency gray scale image data to generate scaled low spatial frequency gray scale image data in the second plane;

a first compressor to compress the high spatial frequency gray scale image data in the first plane; and

a second compressor to compress the low spatial frequency gray scale image data in the second plane,

wherein the converter, segmentor, first compressor and second compressor are implemented in either hardware or software, the software that is being part of a program stored on a computer-readable storage medium installed in the apparatus, or in hardware apparatus.

10. (Previously Presented) The apparatus of claim 9, wherein the segmentor segments the gray scale image data into a plurality of blocks before segmenting pixels in the blocks into the first plane and the second plane.

11. (Original) The apparatus of claim 9, further comprising:
a filter to enhance the low spatial frequency gray scale image data in the second plane.

12. (Original) A marking device incorporating the apparatus of claim 9.
13. (Original) A digital photocopier incorporating the apparatus of claim 9.

14. (Original) A stand alone document scanner or a multifunctional device

incorporating the apparatus of claim 9.

15-20. (Canceled)

21. (Currently Amended) A computer-readable storage medium storing a program for reformatting binary image data, the binary image data coming from ~~an external data~~ source outside an apparatus into which the computer-readable storage medium is installed, the program comprising the steps of:

receiving binary data from the ~~external data~~ source;

converting the binary data into gray scale image data;

segmenting the gray scale image data into a selector plane and a background plane;

scaling the gray scale image data only in the background plane;

applying an enhancement filter or a tonal correction to the gray scale image data in the background plane; and

separately compressing the gray scale image data in the background plane using JPEG compression and the gray scale image data in the ~~text~~selector plane using G4 compression.